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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/690,524 | 10/23/2003 | Toshihiro Suzuki | 244257US90 | 6379 |

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| EXAMINER | |
|---|---|
| FARAGALLA, MICHAEL A | |
| ART UNIT | PAPER NUMBER |
| 2617 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | NOTIFICATION DATE | DELIVERY MODE |
|---|---|---|
| 3 MONTHS | 03/22/2007 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/22/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/690,524 | SUZUKI ET AL. | |
| | Examiner | Art Unit | |
| | Michael Faragalla | 2617 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *23 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2003* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Eneborg et al (WO 01/35585)** in view of **Johnson et al (Patent number: 6,985,731).**

Consider **Claim 1,** Eneborg et al show a control device, which constitutes a mobile communication system together with a mobile host, or moving network comprising a plurality of mobile hosts, and a plurality of mutually connectable access interfaces each constituting an interface for the connection to a core network at the mobile host or moving network, and which serves to control a handover relating to the connection to the core network at the access interface (see figure 1), comprising:

(a) Connection status acquiring means for acquiring information on the connection status to the core network at each access interface (read as access mechanisms 121-125), from each access interface (figures 1 and 4; page 14, lines 18-28; page 15, lines 1-5); (the system checks if the current access mechanism matches users preferences, and changes the access mechanism accordingly, which is read as acquiring information on the connection status to the core network).

(b) Handover checking means for checking a subsequent handover on the basis of the information on the connection status to the core network at each access

interface (figure 4; page 14, lines 18-28; page 15, lines 1-5); (the system checks next device in order to change connection to new access network devices, if the access mechanism does not match user preference).

(c) Changing means for dynamically changing the access interface adopted as the connection interface in accordance with predetermined logic when a predetermined condition is satisfied on the basis of the information on the connection status to the core network at each access interface or the checking information for a subsequent handover (figure 4; page 14, lines 18-28; page 15, lines 1-5; page 11, lines 11-15).

However, Eneborg et al show checking means for checking a subsequent handover, but does not specifically show predicting means for predicting a subsequent handover.

In related art, Johnson et al show predicting means for predicting a subsequent handover (figure 3).

Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to incorporate the teaching of Johnson et al into the teaching of Eneborg et al in order to increase the capacity of the system (Johnson et al, column 3, lines 65-67).

Consider **Claim 12,** Eneborg et al show al show a handover control method by a mobile communication system that is constituted comprising a mobile host, or a moving network comprising a plurality of mobile hosts; a plurality of mutually connectable access interfaces each constituting an interface for the connection

to a core network at the mobile host or moving network (read as access mechanisms 121-125), and a control device for controlling a handover relating to the connection to the core network at the access interfaces (page 11, lines 11-15), wherein the control device dynamically changes the access interface adopted as the connection interface in accordance with predetermined logic when a predetermined condition is satisfied on the basis of the connection status to the core network at each access interface or the checking information for a subsequent handover (figure 4; page 14, lines 18-28; page 15, lines 1-5; page 11, lines 11-15).

However, Eneborg et al show checking means for checking a subsequent handover, but does not specifically show predicting means for predicting a subsequent handover.

In related art, Johnson et al show predicting means for predicting a subsequent handover (figure 3).

Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to incorporate the teaching of Johnson et al into the teaching of Eneborg et al in order to increase the capacity of the system (Johnson et al, column 3, lines 65-67).

Consider **Claim 13,** Eneborg et al show al show a mobile communication system that is constituted comprising a mobile host, or a moving network comprising a plurality of mobile hosts; a plurality of mutually connectable access interfaces each constituting an interface for the connection to a core network at the mobile

host or moving network; and a control device for controlling a handover relating to the connection to the core network at the access interfaces, wherein the control device comprises:

(a) Connection status acquiring means for acquiring information on the connection status to the core network at each access interface, from each access interface (figures 1 and 4; page 14, lines 18-28; page 15, lines 1-5); (the system checks if the current access mechanism matches users preferences, and changes the access mechanism accordingly, which is read as acquiring information on the connection status to the core network).

(b) Handover checking means for checking a subsequent handover on the basis of the information on the connection status to the core network at each access interface (figure 4; page 14, lines 18-28; page 15, lines 1-5); (the system checks next device in order to change connection to new access network devices, if the access mechanism does not match user preference).

(c) Changing means for dynamically changing the access interface adopted as the connection interface in accordance with predetermined logic when a predetermined condition is satisfied on the basis of the information on the connection status to the core network at each access interface or the checking information for subsequent handover (figure 4; page 14, lines 18-28; page 15, lines 1-5; page 11, lines 11-15).

However, Eneborg et al show checking means for checking a subsequent handover, but does not specifically show predicting means for predicting a subsequent handover.

In related art, Johnson et al show predicting means for predicting a subsequent handover (figure 3).

Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to incorporate the teaching of Johnson et al into the teaching of Eneborg et al in order to increase the capacity of the system (Johnson et al, column 3, lines 65-67).

Consider **Claim 2,** Eneborg et al as modified by Johnson et al show the control device according to claim 1, wherein, upon dynamically changing the access interface, the changing means continue transmission and receipt of data with respect to an appropriate access interface capable of maintaining a predetermined communication quality, and maintain the connection to the core network with respect to an access interface while causing the access interface to enter a closed state in which the transmission and reception of data is disabled (page 10, lines 16-23; page 11, lines 11-15, and lines 22-26).

Consider **Claim 3,** Eneborg et al as modified by Johnson et al show the control device according to claim 1, wherein, upon dynamically changing the access interface, the changing means continue transmission and receipt of data with respect to an appropriate access interface which is capable of maintaining a predetermined communication quality and when the access interface connected to the mobile host is connected to the appropriate access interface; and continue communications by establishing a connection between the mobile host and the

appropriate access interface, when the mobile host is not connected to the appropriate access interface and the access interface connected to the mobile host is not connected t the appropriate access interface (figure 1; page 10, lines 16-23; page 11, lines 11-15, and lines 22-26).

Consider **Claims 4 and 11,** combination of Eneborg et al and Johnson et al shows the control device according to claim 1, further comprising: downlink control means that perform control so that downlink data from the core network is transmitted via an access router that is connected to the appropriate access interface, among the access routers in the core network, and further, the predetermined logic is that of selecting an access interface that corresponds with a predicted value for the maximum-value field strength from among predicted values for the field strengths between each access interface and the core network, which are predicted on the basis of subsequent movement prediction.

Consider **Claim 5,** Eneborg et al as modified by Johnson et al show the control device according to claim 1, wherein the connection status acquiring means are constituted comprising: information receiving means for receiving information on the connection status between each access interface and the core network, and switching information that includes identification information for identifying the previous access router and the destination access router at the time switching occurs ((figure 1; page 10, lines 16-23; page 11, lines 11-15, and lines 22-26).

However, Eneborg et do not specifically show that connection acquiring means are further constituted comprising locational relationship tracking means for tracking the locational relationship of all the access interfaces connected to the mobile hosts and the moving network; as well as switching end time information, the information being reported by each access interface; and wherein the handover predicting means are constituted comprising: velocity tracking means for tracking at least velocity information pertaining to the mobile hosts and the moving network in accordance with a predetermined tracking logic, on the basis of the locational relationship of each access interface thus tracked and the connection status information and switching information thus received; and predicting means for predicting subsequent movement and changes in the field strength based on the tracked information.

In related art, Johnson et al show that connection acquiring means are further constituted comprising locational relationship tracking means for tracking the locational relationship of all the access interfaces connected to the mobile hosts and the moving network; as well as switching end time information, the information being reported by each access interface; and wherein the handover predicting means are constituted comprising: velocity tracking means for tracking at least velocity information pertaining to the mobile hosts and the moving network in accordance with a predetermined tracking logic, on the basis of the locational relationship of each access interface thus tracked and the connection status information and switching information thus received; and predicting means for predicting subsequent movement and changes in the field strength based on

the tracked information (figures 2 and 4; column 6, lines 41-59; column 3, lines 32-44; column 9, lines 36-50).

Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to incorporate the teaching of Johnson et al into the teaching of Eneborg et al in order to manage moving users (Johnson et al, column 2, lines 5-10).

Consider **Claims 6 and 7,** combination of Eneborg et al and Johnson et al shows the control device of claim 5, wherein, for a mobile host and moving network that are multihomed by means of two access interfaces, upon recognizing, on the basis of the switching information from each access interface, that the adjacent switchings are executed by the same access router, the control device tracks a value obtained by dividing the distance x by the switching time difference t, as the velocity pertaining to the mobile host and moving network, based on a switching time difference t and a distance x between the access interfaces for the adjacent switchings, as well as, based on a plurality of combinations of the switching time difference t and the distance x between the access interfaces for the adjacent switchings, a direction which links the two access interfaces and where the first-switched access interface lies foremost as the direction of movement, and a value obtained by dividing the distance x by the switching time difference t as the velocity, with respect to each combination; and finds the vector sum of the velocity vectors for each combination and tracks the direction of

movement and velocity of the mobile host and moving network by means of the vector sum thus obtained.

Consider **Claim 8,** Eneborg et al as modified by Johnson et al show the control device according to claim 1, wherein: the predetermine condition is that the field strength between the access interface and the core network should be less than a predetermined threshold value (figure 4; page 5, lines 10-23).

Consider **Claims 9 and 10,** Eneborg et al as modified by Johnson et al show the control device according to claim 1, wherein: the predetermined condition is that a predicted value for the field strength between the access interface and the core network which is predicted on the basis of subsequent movement prediction should be less than a predetermined threshold value, and further show the control device according to claim 1, wherein: the predetermined logic is that of selecting an access interface that corresponds with a maximum-value field strength from among the field strengths between each access interface and the core network (figure 4; page 10, lines 16-23; page 11, lines 11-15).

## ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(1) METHOD AND ARRANGEMENT IN A TELECOMMUNICATION SYSTEM **(Patent number: 6,553,231).**

(2) ENVIRONMENT AWARE SERVICES FOR MOBILE DEVICES **(Patent number: 7,013,149).**

(3) METHOD FOR PREPARING AN INTERFREQUENCY HANDOVER, A NETWORK ELEMENT AND A MOBILE STATION **(Patent number: 7,020,108).**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Faragalla whose telephone number is (571) 270-1107. The examiner can normally be reached on Mon-Fri 7:30 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Faragalla

Patent Examiner

03/13/2007

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